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Hull

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(54) **INVERSE METHOD TO ESTIMATE THE PROPERTIES OF A FLEXURAL BEAM AND THE CORRESPONDING BOUNDARY PARAMETERS**

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(58) **Field of Search** 73/574–575, 579, 73/581–583, 594, 786–789, 801, 587; 367/13

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(57) **ABSTRACT**

A system and method is used for estimating the properties of a flexural beam. The beam is shaken transverse to its longitudinal axis. Seven frequency domain transfer functions of displacement are measured at spaced apart locations along the beam. The seven transfer functions are combined to yield closed form values of the flexural wavenumber in propagation coefficients at any test frequency.

12 Claims, 12 Drawing Sheets